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**IN THE UNITED STATES PATENT & TRADEMARK OFFICE**

RECEIVED APPLICATION OF

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CHRISTIAN MARZOLIN ET AL.

: EXAMINER: BOYD, J. A.

SERIAL NO: 09/719,153

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RCE FILED: JUNE 20, 2003

: GROUP ART UNIT: 1771

FOR: SUBSTRATE WITH A  
PHOTOCATALYTIC COATING

:

**NEW APPEAL BRIEF**

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

This is a modified New Appeal Brief that respectfully requests a reinstatement of the Appeal initiated by the Notice of Appeal filed on October 12, 2004. The present modified New Appeal Brief is responsive to (1) the Notification of Non-Compliant Appeal Brief dated August 1, 2005, and to (2) the new Final Office Action<sup>1</sup> dated February 25, 2005, that presents new rejections of Claims 1-11, 13-18, and 20-21. The modified New Appeal Brief removes arguments from the Summary section and adds those arguments to the Argument section.

Because the new Final Office Action has been mailed after an Appeal Brief was filed on December 7, 2004, Appellants consider that the new Final Office Action has reopened prosecution, although no statement to that effect is present. In this regard, paragraph 1 on page 2 of the new Final Office Action indicates that the "finality" of the action mailed July

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<sup>1</sup> The box 2(a) on the Office Action Summary is checked to indicate that this new action is "FINAL." Even if box 2(a) has been checked in error, the new Appeal is still in order.

12, 2004, is “withdrawn” as, apparently,<sup>2</sup> are the 112 rejection of Claims 1, 13, and 22 of paragraphs 4-6, the 103 rejection of Claims 22 and 23 of paragraph 7, the 103 rejection of Claims 1 and 10 of paragraph 8, and the 103 rejection of Claims 1-9, 11-19, and 21 of paragraph 9 of the Action.

The Notice of Appeal from the previous Final Office Action dated July 12, 2004, was timely filed on October 12, 2004, and according to MPEP § 1208.02, no fees are required for reinstating the Appeal.

Applicants respectfully request that the Office acts on an expedited bases on the filed modified New Appeal Brief (see MPEP § 1208, the Office should respond within two months to an Appeal Brief). It is noted that the New Appeal Brief has been filed on May 12, 2005, and the Office has responded to the New Appeal Brief on August 1, 2005, which is later than the 2 months term set forth by MPEP § 1208.

#### I. REAL PARTY IN INTEREST

The real party in interest in this appeal is the Assignee SAINT-GOBAIN RECHERCHE.

#### II. RELATED APPEALS AND INTERFERENCES

Appellants’ legal representative and Assignee are aware of no appeals which will directly effect or be directly effected by or have any bearing on the Board’s decision in this appeal.

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<sup>2</sup> Applicants say “apparently” as this reference to the Action of July 8, 2004, seems to be “an error.” If any of these rejections are reinstated, Applicants herein incorporate by reference the previously filed Appeal Brief of December 7, 2004, in response to such rejection reinstatement.

### III. STATUS OF THE CLAIMS

Claims 1-11, 13-18, and 20-21 stand finally rejected in the new Final Office Action mailed February 25, 2005. A clean copy of the pending Claims 1-11, 13-18, and 20-21 is attached in the Claims Appendix.

### IV. STATUS OF THE AMENDMENTS

No amendment has been filed after the Notice of Appeal. However, after the Final Office Action of July 12, 2004, an Amendment canceling Claims 22-23 and amending independent Claims 1 and 13 to place them in better form for appeal was filed on September 3, 2004. That amendment has been entered for the purpose of the appeal as indicated in the Supplemental Advisory Action mailed on October 6, 2004, and in the new Final Office Action mailed February 25, 2005.

### V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Independent Claim 1 recites a substrate that includes “a fibrous material” and a “photocatalytic material coating at least a portion of the fibrous material.” A portion of the substrate that includes the fibrous material, which is defined in the original specification at page 2, lines 27-36, is coated with the photocatalytic coating material. An individual fiber so coated is shown in Figure 1, with magnification of this coating shown by Figures 2 and 3. The photocatalytic coating material includes (i) a photocatalytic semi-conducting material, and (ii) an adhesion promoter for promoting adhesion of the photocatalytic semi-conducting material to the fibrous material, as disclosed in the original specification at page 2, lines 3-10, and in Examples 1-3 on page 14, line 1, to page 16, line 19. The photocatalytic semi-conducting material includes titanium oxide which is at least partially crystallized in anatase

form as described in the original specification at page 5, line 29, to page 6, line 2, and at page 14, lines 27-36.

Further, Claim 1 recites that the photocatalytic semi-conducting material includes “titanium oxide which is at least partially crystallized in anatase form” and the photocatalytic coating material “coats fibers in the portion of the fibrous material over a thickness of between 30 and 50 nm, which is comparable to a mean size of crystallites of the at least partially crystallized titanium oxide in anatase form.”

The specification specifically discloses at page 5, lines 33-37, that the titanium oxide at least partially crystallized in anatase form is “introduced into the coating in the form of [(i)] crystalline particles ... or [(ii)] in the form of a dry powder composed of particles which are optionally more or less agglomerated with one another.”

The photocatalytic coating material coats fibers in the portion of the fibrous material over a thickness of between 30 and 50 nm.<sup>3</sup> The specific thickness of the photocatalytic coating material, between 30 and 50 nm, “takes into account the most commonly encountered mean size of the anatase TiO<sub>2</sub> crystallites,” as described in the original specification at page 10, lines 16-21.

Independent Claim 13 is directed to a process for manufacturing a substrate which (i) “deposits a liquid binder to bind fibers and form a fibrous material,” as disclosed in the original specification at page 8, line 32, to page 9, line 7. Further, the process (ii) deposits a photocatalytic coating material in liquid phase over at least a portion of the fibrous material such that the photocatalytic coating material “coats fibers in the portion of the fibrous material over a thickness of between 30 and 50 nm, which is comparable to a mean size of crystallites of at least partially crystallized titanium oxide in anatase form,” the support for

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<sup>3</sup> See specification, page 10, lines 9-15.

which is fully discussed above. The photocatalytic material includes a photocatalytic semi-conducting material and an adhesion promoter for promoting adhesion of the photocatalytic semi-conducting material to the fibrous material (see page 2, lines 3-10, of the originally filed specification). The photocatalytic semi-conducting material comprises titanium oxide at least partially crystallized in anatase form 2, lines 15-19.

#### VI. GROUND'S OF REJECTIONS TO BE REVIEWED ON APPEAL

Appellants respectfully request the Board to review on this new appeal the new rejections of Claims 1-11, 13-18, and 20-21 under the separate written description and enablement requirements of 35 U.S.C. § 112, first paragraph.

#### VII. ARGUMENT

A. The term “comparable” recited in Claims 1 and 13 is supported by the specification.

Independent Claim 1 subject matter has been discussed above. Further, the original specification discloses various examples of “agglomerated particles” and “crystalline particles.” For example, the specification discloses at page 14, lines 11-12, “crystallite agglomerates ... having a mean size of the order of 20 to 80 nm.” In another example, the specification discloses at page 14, lines 35-36, “anatase crystallized TiO<sub>2</sub> particles with a mean diameter of 30 nm,” and at page 15, lines 23-24, “TiO<sub>2</sub> particles [that] have a mean diameter of approximately 45 nm.” Thus, the specification teaches “agglomerated particles” with a mean size of 20 to 80 nm and “crystallized particles” having a mean size of 30 and/or 45 nm. Thus, the specification expressly discloses a coating material having a thickness between 30 and 50 nm, and also discloses three different examples in which the mean size of

the crystallites (“crystalline particles” and “agglomerated particles” as discussed above) is 20 to 80 nm, or 30 nm, or 45 nm, i.e., in the range of 20 to 80 nm. It is noted that for this written description part of the §112, first paragraph rejection the new Final Office Action does not distinguish between the “crystalline particles” and the “agglomerated particles” of the TiO<sub>2</sub> in anatase form, and thus the Appellants’ argument at this stage also does not address that distinction. Thus, the at least partly crystallized TiO<sub>2</sub> in anatase form includes “crystalline particles” or “agglomerated” particles.

Therefore, Appellants respectfully submit that the claimed thickness of the photocatalytic coating material, between 30 and 50 nm, is, *per se* “comparable” to the mean size of either the “agglomerated particles” or the “crystallized particles.”

Appellants note the expression “comparable to the mean size” used in Claims 1 and 13 is argued at page 3, lines 11-13 of the new Final Office Action to be narrower than the expression “takes into account the most commonly encountered mean size” disclosed in the specification. However, even if it is assumed that these expressions are of slightly different scope, it is still clear that the expression “comparable” falls into the scope suggested by the expression “takes into account.”

Further, in this regard, it is clear that Appellants’ claimed invention advantageously provides a maximum effectiveness of the coating and an increased photocatalytic activity of the photocatalytic material by “taking into account the most commonly encountered mean size of the anatase TiO<sub>2</sub> crystallites.”<sup>4</sup> If “the most commonly encountered mean size” is taken into account in the coating structure, it must clearly be done by being made comparable to this “most commonly encountered mean size” because the preferred thickness noted at

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<sup>4</sup> See specification, page 10, lines 16-21.

page 10, lines 14-15, is “30 to 50 nm,” which is comparable to the above-noted mean size of anatase TiO<sub>2</sub> crystallites.

The new Final Office Action considers that the amendment to independent Claims 1 and 13, which recites a thickness of between 30 and 50 nm “which is comparable to a mean size of crystallites of the at least partially crystallized titanium oxide in anatase form” is not supported by the specification.<sup>5</sup> The new Final Office Action refers to page 10, lines 16-21, of the specification to indicate that the above-noted thickness “takes into account the most commonly encountered mean size of the anatase form TiO<sub>2</sub> crystallites.” Further, the new Final Office Action states at page 3, numbered paragraph 4, that “the phrase ‘takes into account’ is a very broad limitation and does not necessarily require that the size is *comparable* to the means size of the crystallites,” as recited in Claims 1 and 13. Noticeable by its absence is the required reason why the PTO is asserting that the specification language considered in context does not mean the same thing as the term “comparable.”

Furthermore, and as recognized in the new Final Office Action, the expression “takes into account” used in the specification is a broad limitation. Even if the broad language and the term “comparable” can be said to be of different scope if considered apart from the present disclosure, there is no known authority that would permit these terms to be so analyzed, i.e., in a vacuum, as the new Final Office Action appears to analyze them. Thus, Appellants respectfully submit that the expression “takes into account,” as used in the specification, clearly supports the claimed expression “comparable.”

Thus, based on the disclosures of the specification that the “preferred thickness” (30 to 50 nm) of the coating “takes into account” “the most commonly encountered mean size” (20 to 80 nm) of the anatase TiO<sub>2</sub> crystallites by being *per se* “comparable” thereto,

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<sup>5</sup> Final Office Action, page 3, numbered paragraph 4.

Appellants respectfully submit that the artisan would understand that the mean size of 30 to 50 nm is comparable to the mean size of 20 to 80 nm, and certainly to the mean size of 30 nm and 45 nm.

In this last regard, the question which must be answered is not whether the application originally filed in the PTO used exactly the same words that appear in amended independent Claims 1 and 13. Instead, the question to be answered is “whether this originally filed application clearly conveyed in any way to those skilled in the art, to whom it is addressed, the information that appellants invented” the subject matter of Claims 1 and 13, including the coating having the “thickness of between 30 and 50nm, which is comparable to a mean size of crystallites of the at least partly crystallized titanium oxide in anatase form.” See *In re Smythe*, 480 F.2d 1376, 1382, 178 USPQ 279, 284 (CCPA 1973). The *Smythe* decision, *id.*, is further highly relevant in dismissing a PTO attempt there to establish a rule that the description of the invention in the specification has to be of no different scope from that in the later amended claim. Instead of such a rule, the court emphasized consideration of what was “conveyed in any way to those skilled in the art” by the originally filed application. Specifically included in consideration was what “would naturally occur to one skilled in the art reading the description.” See *id.*

Clearly in this last regard, amended independent Claims 1 and 13 merely recite what would be a self evident truth to those of ordinary skill in the art having read the original application as to the claimed thickness “between 30 to 50 nm” being a thickness “which is comparable to” the originally disclosed “mean size of crystallites of the at least partly crystallized titanium oxide in anatase form.”

Accordingly, it is respectfully submitted that the claim amendments are supported by the specification and the rejection of Claims 1 and 13, as well as Claims 2-11, 14-18 and 20-



21 (see page 3, lines 2-3 of the new Final Office Action) under the written description requirement of 35 U.S.C. § 112, first paragraph, be reversed.

B. The specification is enabling.

The Final Office Action states on page 3, numbered paragraph 5, that the specification “does not reasonably provide enablement for *crystallites* having a mean size of the order of 20 to 80 nm.”

Initially, Applicants respectfully submit that Claims 1 and 13 do not recite crystallites having a mean size of the order of 20 to 80 nm, and therefore, it is not material whether or not the specification provides “enablement” for that feature not found in rejected Claims 1 and 13. Furthermore, the assertion is incorrect because the specification discloses the above features as will be discussed below.

Before going into detail, however, it is first noted that Claims 1 and 13 recite that a photocatalytic coating material coats fibers “over a thickness of between 30 and 50 nm,” and that the specification clearly supports and discloses this feature at page 10, lines 9-15.

Further, it is noted that paragraph 5, starting on page 3 of the new Final Office Action, appears to attempt to distinguish the “particles composed of crystallite agglomerates” from the “crystallites” and to suggest that while the “particles composed of crystallite agglomerates” have been disclosed to have a mean size in the 20 to 80 nm range (at page 14 of the Specification), “crystallites” have not been disclosed to have that mean size. However, the Specification disclosure at page 14, lines 8-12 is that the solution includes “a dispersion of particles of TiO<sub>2</sub> crystallized in anatase form, probably composed of crystallite agglomerates, these agglomerates [or particles] having a mean size of the order of 20 to 80 nm” (emphasis added).

Furthermore, Example 2 (bottom of page 14) discusses “anatase crystallized TiO<sub>2</sub> particles with a mean diameter of 30 nm” while Example 3 of page 15 simply notes TiO<sub>2</sub> particles having a mean diameter of “45 nm.” Clearly, the “agglomerated” nature of the particles is not important. Moreover, all that Claims 1 and 13 require is that the thickness of 30 to 50 nm “is comparable to a mean size of crystallites of the at least partly crystallized titanium oxide in anatase form” and there can be no question that the Examples presented in the Specification disclose how to achieve this.

In addition, according to the enablement requirement of the first paragraph of 35 U.S.C. § 112 as set forth in MPEP § 2164, the Examiner must determine whether “the specification describes how to make and how to use the invention.” Further, the test for determining whether the specification meets the enablement requirement was cast in MPEP § 2164.01 as a question: “is the experimentation needed to practice the invention undue or unreasonable?” Further, MPEP § 2164.01(a) sets forth eight factors that should be taken into consideration by the Office when determining the undue experimentation.

However, Appellants note that although the new Final Office Action alleges at page 3, numbered paragraph 5, that the specification is not enabling, the new Final Office Action does not address any of these prerequisites, in terms of the test for establishing lack of enablement, and the factors required to be considered for finding undue experimentation.

Therefore, Appellants respectfully submit that the rejection of Claims 1 and 13 under 35 U.S.C. § 112, first paragraph is improper and should be reversed.

CONCLUSION

As the Examiner has failed to establish (i) that the claimed expression “comparable” is not supported by the expression “takes into consideration” of the specification, and (ii) lack of enablement of the specification, reversal of all outstanding rejections is respectfully requested.

Respectfully submitted,

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### VIII. CLAIMS APPENDIX

1. A substrate comprising:

a fibrous material; and

a photocatalytic coating material coating at least a portion of the fibrous material and including a photocatalytic semi-conducting material and an adhesion promoter for promoting adhesion of the photocatalytic semi-conducting material to the fibrous material,

wherein the photocatalytic semi-conducting material comprises titanium oxide which is at least partly crystallized in anatase form and the photocatalytic coating material coats fibers in the portion of the fibrous material over a thickness of between 30 and 50 nm, which is comparable to a mean size of crystallites of the at least partly crystallized titanium oxide in anatase form.

2. The substrate according to Claim 1, wherein

the titanium oxide is in a form of one of particles in colloidal suspension and a powder.

3. The substrate according to Claim 1, wherein the photocatalytic semi-conducting material comprises a titanium oxide from one of thermal decomposition of organometallic and at least one metal halide precursor in the photocatalytic coating material.

4. The substrate according to Claim 1, wherein the adhesion promoter comprises at least one of an organic material and an organic/inorganic hybrid material.

5. The substrate according to Claim 1, wherein the adhesion promoter comprises a silicon-comprising component selected from the group consisting of silane, silicone and siloxane.

6. The substrate according to Claim 1, wherein the adhesion promoter comprises at least one organic polymer selected from the group consisting of acrylic polymers and fluorinated polymers.

7. The substrate according to Claim 1, wherein the adhesion promoter comprises at least one oxide selected from the group consisting of  $\text{TiO}_2$  and  $\text{SiO}_2$  from one of thermal decomposition of silicon-comprising, organometallic or metal halide precursor(s) within the photocatalytic coating material.

8. The substrate according to Claim 1, wherein the adhesion promoter comprises at least one inorganic component selected from the group consisting of aluminium phosphates, potassium aluminosilicates and calcium aluminosilicates.

9. The substrate according to Claim 1, wherein the adhesion promoter forms part of a binder providing cohesion of the fibrous material.

10. The substrate according to Claim 1, wherein the fibrous material comprises at least one of insulation mineral wool and reinforcing glass strands.

11. The substrate according to Claim 1, wherein the fibrous material is one of web, felt, mould, paper and bulk material forms.

13. A process for manufacturing a substrate, comprising:  
depositing a liquid binder to bind fibers and form a fibrous material; and  
depositing a photocatalytic coating material in liquid phase over at least a portion of the fibrous material such that the photocatalytic coating material coats fibers in the portion of the fibrous material over a thickness of between 30 and 50 nm, which is comparable to a mean size of crystallites of at least partly crystallized titanium oxide in anatase form, the photocatalytic material including a photocatalytic semi-conducting material and an adhesion promoter for promoting adhesion of the photocatalytic semi-conducting material to the fibrous material,

wherein the photocatalytic semi-conducting material comprises titanium oxide at least partially crystallized in anatase form.

14. The process according to Claim 13, wherein the depositing the photocatalytic coating material comprises depositing the photocatalytic coating material downstream of a fiberizing device before heat treatment/conditioning devices.

15. The process according to Claim 13, wherein the depositing the photocatalytic coating material comprises depositing the photocatalytic material while the fibrous material is being formed into mats.

16. The process according to Claim 13, wherein the depositing the photocatalytic coating material after converting the fibrous material into a finished product and before subjecting the finished product to a heat treatment.

17. The process according to Claim 13, wherein the depositing the photocatalytic coating material comprises one of spraying, coating and dip coating.

18. The substrate according to Claim 1, wherein the fibrous material comprises one of a thermal insulation material, a sound insulation material, a liquid filter, a gas filter, a purifier, and a diffuser.

20. The substrate according to Claim 1, wherein the adhesive promoter further comprises at least one additive selected from the group consisting of an antioxidant, an ultraviolet absorber and a hindered amine light stabilizer.

21. The substrate according to Claim 1, wherein the adhesion promoter comprises at least one of an inorganic material and an organic/inorganic hybrid material.

## IX. EVIDENCE APPENDIX

### **1208.02 Reopening the Prosecution after Appeal**

The examiner may, with approval from the supervisory patent examiner, reopen prosecution to enter a new ground of rejection after appellant's brief or reply brief has been filed. The Office action containing a new ground of rejection may be made final if the new ground of rejection was (A) necessitated by amendment, or (B) based on information presented in an information disclosure statement under 37 CFR 1.97(c) where no statement under 37 CFR 1.97(e) was filed. See MPEP § 706.07(a).

[missing paragraphs]

See 37 CFR 1.193(b)(2). Whether appellant elects to continue prosecution or to request reinstatement of the appeal, if prosecution was reopened prior to a decision on the merits by the Board of Patent Appeals and Interferences, the fee paid for the notice of appeal, appeal brief, and request for oral hearing (if applicable) will be applied to a later appeal on the same application.

If reinstatement of the appeal is requested, the request must be accompanied by a supplemental appeal brief; however, no new amendments, affidavits (37 CFR 1.130, 1.131, or 1.132), or other evidence is permitted. The supplemental appeal brief must comply with the requirements of 37 CFR 1.192(c), but in doing so may incorporate by reference such parts of the previously-filed brief as may still be applicable.

The arguments presented in the supplemental appeal brief need only be those relevant to the new ground(s) of rejection raised in the Office action that reopened prosecution, but the appellant should also identify all previously-raised issues and/or arguments which are still considered to be relevant. If the examiner does not consider that the supplemental appeal brief complies with the foregoing requirements, appellant should be given a 1-month time period within which to file an amended supplemental brief under 37 CFR 1.192(d). See MPEP § 1206.

After the supplemental appeal brief is filed, the examiner may issue an answer thereto, and appellant may file a reply brief. It is also possible that, after reading the brief, the examiner may be convinced that some or all of the finally rejected claims are allowable. Where the examiner is of the opinion that some of the claims are allowable, he or she should so specify in the examiner's answer and confine the arguments to the remaining rejected claims. If the examiner finds, upon reconsideration, that all the rejected claims are allowable, or where the appellant in the brief withdraws the appeal as to some of the rejected claims by submitting an appropriate amendment and the examiner finds the remaining claims to be allowable, the examiner should allow the application.

In applications where an interference has resulted from the applicant provoking an interference with the patent which provided the basis for final rejection, the rejection based on that patent should be withdrawn and the appeal dismissed as to the involved claims.



## **2164 The Enablement Requirement [R-2]**

The enablement requirement refers to the requirement of 35 U.S.C. 112, first paragraph that the specification describe how to make and how to use the invention. The invention that one skilled in the art must be enabled to make and use is that defined by the claim(s) of the particular application or patent.

The purpose of the requirement that the specification describe the invention in such terms that one skilled in the art can make and use the claimed invention is to ensure that the invention is communicated to the interested public in a meaningful way. The information contained in the disclosure of an application must be sufficient to inform those skilled in the relevant art how to both make and use the claimed invention. >However, to comply with 35 U.S.C. 112, first paragraph, it is not necessary to “enable one of ordinary skill in the art to make and use a perfected, commercially viable embodiment absent a claim limitation to that effect.” *CFMT, Inc. v. Yieldup Int’l Corp.*, 349 F.3d 1333, 1338, 68 USPQ2d 1940, 1944 (Fed. Cir. 2003) (an invention directed to a general system to improve the cleaning process for semiconductor wafers was enabled by a disclosure showing improvements in the overall system).<Detailed procedures for making and using the invention may not be necessary if the description of the invention itself is sufficient to permit those skilled in the art to make and use the invention. A patent claim is invalid if it is not supported by an enabling disclosure.

The enablement requirement of 35 U.S.C. 112, first paragraph, is separate and distinct from the description requirement. *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563, 19 USPQ2d 1111, 1116-17 (Fed. Cir. 1991) (“the purpose of the ‘written description’ requirement is broader than to merely explain how to ‘make and use’ ”). See also MPEP § 2161. Therefore, the fact that an additional limitation to a claim may lack descriptive support in the disclosure as originally filed does not necessarily mean that the limitation is also not enabled. In other words, the statement of a new limitation in and of itself may enable one skilled in the art to make and use the claim containing that limitation even though that limitation may not be described in the original disclosure. Consequently, such limitations must be analyzed for both enablement and description using their separate and distinct criteria.

Furthermore, when the subject matter is not in the specification portion of the application as filed but is in the claims, the limitation in and of itself may enable one skilled in the art to make and use the claim containing the limitation. When claimed subject matter is only presented in the claims and not in the specification portion of the application, the specification should be objected to for lacking the requisite support for the claimed subject matter using Form Paragraph 7.44. See MPEP § 2163.06. This is an objection to the specification only and enablement issues should be treated separately.

### **2164.01 Test of Enablement**

Any analysis of whether a particular claim is supported by the disclosure in an application requires a determination of whether that disclosure, when filed, contained sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention. The standard for determining whether the specification meets the enablement requirement was cast in the Supreme Court decision of

*Mineral Separation v. Hyde*, 242 U.S. 261, 270 (1916) which postured the question: is the experimentation needed to practice the invention undue or unreasonable? That standard is still the one to be applied. *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). Accordingly, even though the statute does not use the term “undue experimentation,” it has been interpreted to require that the claimed invention be enabled so that any person skilled in the art can make and use the invention without undue experimentation. *In re Wands*, 858 F.2d at 737, 8 USPQ2d at 1404 (Fed. Cir. 1988). See also *United States v. Telectronics, Inc.*, 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988) (“The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation.”). A patent need not teach, and preferably omits, what is well known in the art. *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991); *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986), cert. denied, 480 U.S. 947 (1987); and *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984). Determining enablement is a question of law based on underlying factual findings. *In re Vaeck*, 947 F.2d 488, 495, 20 USPQ2d 1438, 1444 (Fed. Cir. 1991); *Atlas Powder Co. v. E.I. du Pont de Nemours & Co.*, 750 F.2d 1569, 1576, 224 USPQ 409, 413 (Fed. Cir. 1984).

## UNDUE EXPERIMENTATION

The fact that experimentation may be complex does not necessarily make it undue, if the art typically engages in such experimentation. *In re Certain Limited- Charge Cell Culture Microcarriers*, 221 USPQ 1165, 1174 (Int’l Trade Comm’n 1983), *aff’d. sub nom.*, *Massachusetts Institute of Technology v. A.B. Fortia*, 774 F.2d 1104, 227 USPQ 428 (Fed. Cir. 1985). See also *In re Wands*, 858 F.2d at 737, 8 USPQ2d at 1404. The test of enablement is not whether any experimentation is necessary, but whether, if experimentation is necessary, it is undue. *In re Angstadt*, 537 F.2d 498, 504, 190 USPQ 214, 219 (CCPA 1976).

### 2164.01(a) Undue Experimentation Factors

There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is “undue.” These factors include, but are not limited to:

- (A) The breadth of the claims;
- (B) The nature of the invention;
- (C) The state of the prior art;
- (D) The level of one of ordinary skill;
- (E) The level of predictability in the art;
- (F) The amount of direction provided by the inventor;
- (G) The existence of working examples; and
- (H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

*In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988) (reversing the PTO’s determination that claims directed to methods for detection of hepatitis B surface antigens did

not satisfy the enablement requirement). In *Wands*, the court noted that there was no disagreement as to the facts, but merely a disagreement as to the interpretation of the data and the conclusion to be made from the facts. *In re Wands*, 858 F.2d at 736-40, 8 USPQ2d at 1403-07. The Court held that the specification was enabling with respect to the claims at issue and found that “there was considerable direction and guidance” in the specification; there was “a high level of skill in the art at the time the application was filed;” and “all of the methods needed to practice the invention were well known.” 858 F.2d at 740, 8 USPQ2d at 1406. After considering all the factors related to the enablement issue, the court concluded that “it would not require undue experimentation to obtain antibodies needed to practice the claimed invention.” *Id.*, 8 USPQ2d at 1407.

It is improper to conclude that a disclosure is not enabling based on an analysis of only one of the above factors while ignoring one or more of the others. The examiner’s analysis must consider all the evidence related to each of these factors, and any conclusion of nonenablement must be based on the evidence as a whole. 858 F.2d at 737, 740, 8 USPQ2d at 1404, 1407.

A conclusion of lack of enablement means that, based on the evidence regarding each of the above factors, the specification, at the time the application was filed, would not have taught one skilled in the art how to make and/or use the full scope of the claimed invention without undue experimentation. *In re Wright*, 999 F.2d 1557,1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993).

The determination that “undue experimentation” would have been needed to make and use the claimed invention is not a single, simple factual determination. Rather, it is a conclusion reached by weighing all the above noted factual considerations. *In re Wands*, 858 F.2d at 737, 8 USPQ2d at 1404. These factual considerations are discussed more fully in MPEP § 2164.08 (scope or breadth of the claims), § 2164.05(a) (nature of the invention and state of the prior art), § 2164.05(b) (level of one of ordinary skill), § 2164.03 (level of predictability in the art and amount of direction provided by the inventor), § 2164.02 (the existence of working examples) and § 2164.06 (quantity of experimentation needed to make or use the invention based on the content of the disclosure).

X. RELATED PROCEEDINGS APPENDIX

NONE